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CHAPTER II

OECOLOGY

I

FROM a European's point of view Nuerland has no favourable qualities, unless its severity be counted as such, for its endless marshes and wide savannah plains have an austere, monotonous charm. It is throughout hard on man and beast, being for most of the year either parched or a swamp. But Nuer think that they live in the finest country on earth and, it must be admitted, for herdsmen their country has many admirable features. I soon gave up trying to convince Nuer that there is any country more suited for cattle husbandry than their own, an attempt rendered more useless since a few of them have been taken to Khartoum, which they consider to be the home of all white men, and, having seen the desert scrub of that latitude, have been confirmed in their opinion that their land is superior to ours.

The grasses necessary for the welfare of the herds depend for existence on suitable conditions of soil and water. The soils of Nuerland are heavy clays, broken by the sun into deep cracks in the drought and sodden in the rains. They hold up water and consequently enable certain species of grasses to survive the dry months and provide pasture for the cattle. Nuer and their cattle would not, however, be able to live if it were not that there are more sandy elevated spots on which they can take refuge in flood-time and where they can practise horticulture.

Surface water comes partly from rainfall and partly from the flooding of the rivers which traverse Nuerland and is more than adequate to make grass. In an average year the rains commence in April, when a few showers fall and the sky is overclouded, but it is not till the end of May that they set in with a will. At their maximum, in July and August, the weather is cool, even cold in the mornings and evenings, the sun is overcast during most of the day, and a south-westerly wind prevails. Showers become lighter and less frequent in October and usually have ceased altogether by the middle of November when the north wind begins to blow. It blows consistently down the valley of the Nile

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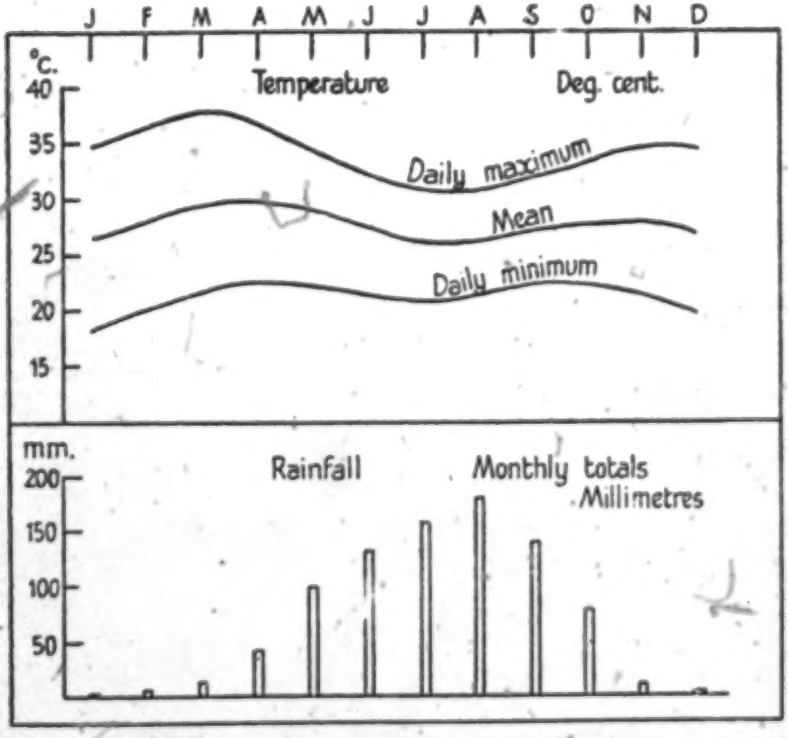
132 till March. In March and April the heat is intense. The rainfall, which is fairly even over all parts of Nuerland, is not so heavy as farther east, on the Ethiopian Plateau, or south, in the basin of the Victoria Nile and along the Nile-Congo divide, though the effects are more felt, because clay beds hold up the water,



Temperature and Rainfall estimates for Nuerland.
(*Physical Department of the Egyptian Government.*)

the flatness of the country prevents surface drainage, and the annual flooding of the rivers occurs simultaneously.

133 The main rivers which so greatly influence Nuer life are shown on the map on p. 8. They are the Nile itself, known in these regions as the Bahr el Jebel, which derives its water from the Plateau of the Great Lakes; its western tributaries the Bahr el Ghazal and the Bahr el Arab, which are fed by streams flowing from the Nile-Congo divide; the Baro, the lower reaches of which are known as the Sobat, coming from the Ethiopian

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133 and a desolate waste stretches everywhere to the horizon
137 (Plates VI and XI (*a*) and (*b*)). A belt of forest sometimes lines a river where its banks are high, but never extends far inland. North of the Sobat, on its lower reaches, true savannah gives way to thorny savannah and beyond the southern extremities of Eastern Nuerland one enters park-like savannah forest which becomes thicker the farther south one proceeds, though it usually turns to marshland as the Bahr el Jebel is approached. The southern borders of Western Nuerland fringe ironstone country, likewise covered with savannah forest. As a rule when the rivers are in flood they have no banks and the country lying on either side of them is swamp threaded with wide lagoons, often running parallel to the main channel. This is especially the case with the Bahr el Jebel and the greater part of the Bahr el Ghazal and the Bahr el Arab, the Jebel and the Ghazal being practically united by surface water in the rainy season. The Bahr el Zeraf is bounded by swamp to a lesser degree and the lower reaches of the Sobat not at all.

133 This vast plain is threaded with depressions, like that shown
132 on Plate XIX (*b*), which run in all directions, often crossing one another, and linking up with the main rivers. Where continuous, these depressions have the appearance of small rivers, though water seldom flows in them. While rain is falling on the country the main rivers flood into these depressions, making a network of waterways which prevents drainage from the saturated earth, so that the rainwater lies everywhere in deep puddles which slowly extend till by the middle of June the whole country, except for occasional higher land, is inundated. The water remains several inches deep till September, and Nuerland has the appearance of a great grass-covered swamp; there are streams, lagoons, and pools wherever there are slight depressions, and islands, on which are perched villages, wherever there are ridges and knolls. The rivers begin to fall about the same time as the rains decline, the fall being most rapid on the Sobat (diagram on p. 53). The blazing sun then quickly evaporates the surface water, while the streams, instead of being channels of overflow from the rivers, now feed them, and by the middle of November the grasses are dry enough to be fired. By the end of December a great part of the country has been burnt

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132 and is cracked into deep fissures. The wet and dry seasons
133 are therefore very pronounced and the transition from one to the other sudden.

312 Scarcity of rain is probably more serious than low river water, but both may inconvenience Nuer to the point of famine, because sufficient water may not be held up in the clay beds to enable the grasses to recover from firing; inland watercourses may quickly dry up and compel movement to lakes and rivers earlier than is desirable; and there may be a shortage of the marsh pasturage which is usually the mainstay of the cattle at the end of the dry season. Insufficient rain may also destroy the millet. Moreover, it is probable that low rainfall over the whole of North-East Africa causes insufficiency of rain and low rivers to occur in Nuerland simultaneously. Western Nuerland is less subject to drought than Eastern Nuerland, and to the west of the Nile there is always water within easy reach of villages. This seems largely due to the fact that the Bahr el Jebel and the Bahr el Ghazal do not sink in their beds to any extent, since they are fed by perennial streams and have enormous marsh and lake reservoirs. High rainfall and high river water probably also go together and in such years of flood it is difficult for the cattle to find enough grazing to maintain life.

131 The main characteristics of Nuerland are: (1) It is dead flat. (2) It has clay soils. (3) It is very thinly and sporadically wooded. (4) It is covered with high grasses in the rains. (5) It is subject to heavy rainfall. (6) It is traversed by large rivers which flood annually. (7) When the rains cease and the rivers fall it is subject to severe drought.

These characteristics interact with one another and compose an environmental system which directly conditions Nuer life and influences their social structure. The determination is of so varied and complex a nature that we do not attempt to summarize its full significance at this stage of our description, but shall ask ourselves a simpler question: to what extent are the Nuer controlled by their environment as herdsmen, fishermen, and gardeners? We have demonstrated that their chief interest is in their herds and shall first discuss how this interest, combined with physical conditions, necessitates a certain mode of life.

[p.56 contains no Textual material]

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361 and the Eastern Jikany are especially fortunate in this respect, but in Western Nuerland, though there are many suitable ridges, the country is more inundated and there are few elevated stretches of any size, except, as far as my observations go, among sections of the Leek and Dok tribes, which are better off than those tribes which lie in between.

What is needed for a village site is not only room for building but also for grazing and cultivations. Many villages are perched on mounds (Plates VII and XVI), the surfaces of which are accumulations of debris, at the edge of those rivers that have banks in flood, and the cattle graze on the slopes or in near-by thornwood forest, where also gardens are cultivated. More usually homesteads are strung out along sandy ridges (Plate VIII), a mile or two in length and a few hundred yards in breadth, sites which allow greater spacial division between them, and the gardens run at their backs and the grazing-grounds to their fronts. In some parts of Nuerland, especially in the favoured tribes I have mentioned, stretches of higher ground, sometimes several miles in extent, enable the people to build anywhere, except near the narrow depressions that thread them, and little groups of homesteads are dotted here and there, surrounded, and separated, by their gardens and grazing grounds. Nuer prefer to dwell in this greater privacy and show no inclination for true village life.

By making their villages on elevated ground Nuer keep themselves and their cattle above the flood that lies everywhere on the vast plain beneath and gain some protection from the swarms of mosquitoes which breed in the standing water. In [312] Western Nuerland I have seen low mud dykes at the foot of 361 occupied ridges to keep back the water in years of heavy flood. As they build always on the highest spots the torrential 132 rains that fall daily after June run off the slope so that the hard floors of kraals soon dry. How terrific are these rains may be judged from Plate XIV, taken from under the awning of my tent during a moderate shower in August, and how considerably they flood all but village sites may be seen in Plate XII, which shows a millet garden, on a higher level than the plain, in October. On a tour of Western Nuerland in October of 1936, a fairly dry year, we walked almost continuously in several

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inches of water for seventeen days, apart from having to cross numerous deep depressions. In some parts of Lou and Eastern Jikany, particularly in Gaajak, people build in open thornwood forest, but generally Nuer prefer to make their villages in open country, even where there is forest near-by, because their cattle are better protected from wild beasts, insect pests, and damp, and also, apparently, because millet does not do so well in wooded country. Building in the open seems also to give freedom from termites.

A Nuer homestead consists of a cattle byre and huts. Their byres are of size and workmanship that have evoked the admiration of all travellers. Their form, and the appearance of huts, may be seen in several plates, and their mode of construction is excellently portrayed in Mr. Corfield's photograph (Plate XVIII). It is only necessary to explain that the roofs are supported by trunks of trees erected inside the barns. Both byres and huts are of wattle and daub, though in Western Nuerland, where there is less forest, bundles of millet stalks are employed as rafters. Building and repairs generally take place early in the dry season when there is plenty of straw for thatching and enough millet to provide beer for those who assist in the work. During the rains fences are erected from the byres along two sides of the kraal and around huts to control the movements of cattle and to prevent them messing the homesteads and damaging the crops (Plate XVII). Grazing and the use of grass, trees, &c., is the common right of all members of a village community.

Families often change their place of residence from one part of a village to another and from village to village, and, in the case of small villages, if there have been many deaths, the cattle are poorly, there have been fights within the village, or pastures and cultivations are exhausted, the whole village community may move to a new site. After about ten years both pastures and gardens show evident signs of exhaustion on the smaller ridges, and huts and byres need rebuilding after some five years.

In dry-season camps men sleep in windscreens and women in beehive-huts, or both sexes in beehive-huts. These flimsy shelters are erected a few yards from water, generally in a semi-circle or in lines with their backs to the prevailing wind, and

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sticky water-laden mud. The clayey plains are broken by occasional sandy ridges and knolls upon which the débris of years of occupation has accumulated. However, Nuer distinguish between the black soil, of such areas as Eastern Jikany country, which they call *mun mi car* or *dök* and the more sandy soil, which is found, for example, in parts of Lou country, and which they call *mun lita*. The black heavy clays are more suitable for cultivation of millet because they hold up rain water, but they are bad for cattle which in the rains have to struggle through the sticky mud and to eat the high coarse grasses which such soil nurtures rather than the sweeter short grasses which prevail on more sandy soils. Thus the Lou people say in favour of their country " Our cattle do not come back each day from grazing caked in mud but they return with clean hooves." On the other hand the more sandy parts of Lou country, *e.g.*, near Muot Dit, do not hold up rain water which makes cultivation of millet difficult so that even a slight drought destroys the young plants, and often makes it necessary for the people to wander early and far from their villages in the dry season to obtain sufficient pasturage. There are no salt-licks in Nuerland.

Surface water comes partly from direct rainfall over Nuerland and partly from the flooding of the principal rivers which traverse it and which derive most of their water from rainfall elsewhere. In an average year the rains commence in April and continue till the end of October. Towards the middle or end of April a few showers come down and the sky is overclouded. It is not till the end of May that the rains set in with a will. July and August are the months with heaviest rainfall and the weather is cool, even cold in the mornings and evenings and a south-westerly wind prevails. The sun is overcast during most of the day. Showers become lighter and less frequent in October and by the middle of November have ceased altogether. In November the north wind begins to blow and it blows consistently down the valley of the Nile from the Mediterranean to the Plateau of the Great Lakes till the approach of the next rains. The weather becomes warmer and warmer and from January till March is a great trial to Europeans.

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The mean monthly rainfall up to 1927 is given in millimetres by Hurst and Phillips* for the Bahr el Jebel and Bahr el Ghazal area (Western and part of Eastern Nuerland) and for the Sobat and Baro area (most of Eastern Nuerland) as follows:— 132•

	Bahr el Jebel and Bahr el Ghazal		*Sobat and Baro*	
January	4	millimetres.	6	millimetres.
February	13	,,	14	,,
March	38	,,	33	,,
April	92	,,	80	,,
May	131	,,	137	,,
June	134	,,	158	,,
July	161	,,	173	,,
August	168	,,	199	,,
September	145	,,	153	,,
October	112	,,	90	,,
November	43	,,	48	,,
December	8	,,	10	,,
Year	1049	,,	1091	,,

The rainfall is fairly even over the whole of Nuerland. It is not nearly so heavy as it is to the east, on the Abyssinian Plateau, or to the south, in the basin of the Victoria Nile or in the neighbourhood of the Nile-Congo Divide. The effects, however, are felt far more than in these regions because the beds of clayey soil hold up the water and the flatness of the country prevents surface drainage. Moreover, 132 the rivers flood at the same time as the rains pour down and the 133 numerous swampy watercourses which thread their way through Nuerland are prevented from discharging water from their mouths.

The whole of Nuerland is an almost dead flat plain, in the main 133 treeless and during the rains covered with high grasses which reach to 137 the waist and, near streams where they are higher and coarser, reach to the shoulders of the tall Nuer. In my experience they grow somewhat higher in Eastern Nuerland than in Western Nuerland. At

* The Nile Basin by H. E. Hurst and P. Phillips, 1931, Vol. I, p. 47.

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where in deep puddles which slowly extend till by the middle of June the whole surface of the country, except for occasional higher land, is under water. Nuerland has then the appearance of a great grass-covered swamp, there being stagnant rivers, lagoons, and pools, wherever there is a depression in the level surface, and islands wherever slightly elevated ridges and knolls rise from the ground. On these elevated spots are perched the Nuer villages.

The rivers begin to fall about the same time as the rains begin to cease. Nuerland then dries quickly. The blazing sun evaporates the surface water while the streams instead of being channels of overflow from the rivers now begin to feed the rivers, and hence drain their basins, as they sink in their beds. The grasses are dry enough by the middle of November for the Nuer to commence to fire them and by the middle of December most of the country has been burnt and the surface is cracked into deep fissures. So parched is it at this season that it is difficult to find enough water for men and herds. The wet and dry seasons are therefore very pronounced in Nuerland.

The main characteristics of the country are (1) that it is dead flat, (2) that it has clayey soils, (3) that it is mainly treeless, (4) that it is covered with high grasses in the rains, (5) that it is subject to a heavy seasonal rainfall, (6) that all its rivers flood, and (7) that when the rains cease and the rivers fall it is subject to a season of severe drought.

A year in which the rivers are low is probably not so serious for the Nuer as a year in which there is little rain. Nevertheless, when the rivers are low the clay beds may not hold up sufficient water to enable the grasses to spring up again after the annual firing, and the inland watercourses, which to a great extent rely for their water on the flooding of the rivers, may fail early in the dry season and compel the people to move to lakes and river banks earlier than they would normally do, and there may also be a shortage of marsh pasturage which is usually the mainstay of the cattle at the end of the dry season. On the other hand, if there is insufficient rain the millet crop dies and the grasses, deprived of subterranean supplies of water, do not spring

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the country to the east (Gaawär country) to such an extent that a journey which, in the ordinary course of events (in the dry season) is a matter of some inconvenience owing to the uncertainty of finding water, had to be performed for a distance of 80 miles in a canoe. And, in the same year, Nyerol post, thirty five miles to the south of Abwong, on the River Sobat (Lou country), which was usually supplied over a waterless tract (in the dry season) was only with the greatest of difficulty kept in touch with civilization owing to the country in between them being almost entirely under water.*

By November the Sobat has commenced to fall and to drain the streams which serve as its channels of overflow in flood. These streams now contribute to its volume of water with the result that the fall of water at Nasser is registered at the Sobat mouth three weeks or more later.† While the land is being drained by the Sobat the rains have ceased and the sun has evaporated surface water. The grasses are burnt and the country takes on its dry season appearance of a fissured waterless waste. The change from wet-season conditions to dry-season conditions is sudden.

Travelling in February from the Sobat to Pathai and thence eastward to Pul Fadoi, along the newly-made motor road, one traverses slightly higher ground through a thin *heglig* forest which screens the full desolation of the country, for, though in reality it offers scanty shade, it gives an appearance of verdure and freshness, and the ground is carpeted with the oval fawn-coloured fruits of the *heglig*. Game is plentiful and forest pools numerous. But the western part of Lou country, occupied by the Mor tribal section, from Pul Fadoi eastwards for over a hundred kilometres, is bleak and its bleakness is, on the whole, typical of the rest of Lou country and of Nuerland in general. It is thickly covered with dead grasses, from 4 to 8 feet high, except where it has been lately burnt for then one sees only wide stretches of charred earth, fissured into a million fragments, like a gigantic ill-fitting jigsaw puzzle, and strewn with burnt stems of grass and with

* Jackson, *op. cit.*

† Hurst and Phillips, *op. cit.*

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be imagined when one has to stamp one's way through water for ten miles at a stretch. The rank grasses prevent one from leaving the paths and the paths form miniature depressions down which water flows so that it is like walking in the bed of a tiny stream, a sticky bed where every step requires an effort to extract the foot. Rengyan country is amazing at this season of the year. One walks for miles through water to emerge suddenly on a ridge, screened by high grasses till one begins to mount it. Here is a village. One walks through the village to descend into water the other side, and then through miles of water to the next inhabited island. To live in such a country one should be amphibious, like the Nuer, who seem to be in no way inconvenienced by what are to Europeans appalling conditions.

The rains cease in November but so saturated is the earth that a late heavy shower will again innundate the country for 48 hours.

The dry season among the Western Nuer is not so severe as it is among the Eastern Nuer because there is never a shortage of water and the villages are never far from deep lagoons and streams, nor even from the main rivers themselves with their broad fringe of marshes. It is probably only in an exceptionally dry year that the larger inland watercourses entirely dry up. Probably this is in the main due to the fact that the Bahr el Jebel and the Bahr el Ghazal do not sink in their beds like the Sobat and Pibor, since they are fed by permanently flowing streams and have enormous lake and marsh reservoirs. The water of streams and lagoons in Western Nuerland is therefore not so rapidly drained as in Eastern Nuerland. Certainly the water in big streams in Dok country seems to be permanent and in walking through Lek country as late as February in 1930 we had to wade frequently through deep swampy streams and lagoons.

Nuer have expressions to denote the natural features of their country. A treeless plain they call *ghau mi dea* or, in contrast to dry elevated ridges, *pan*. A ridge or knoll is called *kwir* and *thur* or, in reference to its suitability for human occupation, *gwaadh wec*. Land which is partly inundated in the wet season, but not sufficiently to be called swampy, and is therefore suitable for growing millet, is called

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824 233 those grasses which are *wal ghok*, cattle-grasses, and those plants which are eaten regularly by cattle, sheep, and goats or are used for veterinary purposes. One is only given names of plants with hesitation or given different names by different persons when they have no 824 particular value or use. One should not, however, bring leaves and flowers home and ask a Nuer for the names, for this confuses him, but he knows them at once when he sees them growing, as he would normally see them. Not the form of the plant alone but its form together with its habitat enable him quickly to identify it, for some plants are found in gardens, others on sandy ridges, others in the open plain, and others near streams.

824 167 137 It is probable that Nuer expansion has to a considerable degree been influenced by the distribution of pasture grasses. I am not a botanist and can only record a few of the main grasses which are found in both Western and Eastern Nuerland without being able to give their distribution in these latitudes. However, Nuer have told me that the reason they did not oust the Ngok Dinka from their enclave was that their pastures are not up to the grazing standards Nuer demand for their cattle. It has also been pointed out to me by Nuer that Shillukland is very poor in grazing grasses, a statement which seems to me, from a very slight acquaintance with Shilluk country, to be true.

137 233 There are some Nuer grasses the cattle like, some they will eat if they are hungry, and some which they refuse at all times. The richness of pasture varies at different times of the year and in different places and it is these seasonal and local variations which determine Nuer annual, and daily, movements.

•132 137 233 In the season of *Rwil*, the springtime of the year when the early rains fall, all the grasses either send up new shoots or begin to grow again after several months of arrested growth. This is a season of fatness for the cattle. All the pasture grasses are short and tender and they can choose the most luscious of them and graze on them to their hearts' content. In this time of plenty they nibble the heads of the grasses of which they are not greatly fond while they graze to the ground a favourite grass like *gau* (*Andropogon Gayanus Kunth*).

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But when the rainy season (*tŏt*) is well advanced, grazing becomes more difficult, partly because the country is inundated and partly because some of the best grasses like *dut cieng nath* (*Echinochloa pyramidalis Hitchc. and Chase*) grow tall and rank and are no longer favoured by the cattle, though this particular grass which grows in the open plain and may, perhaps, be regarded as the characteristic grass of Western Nuerland, does not grow so coarse as many others and is the great stand-by of the cattle in a bad year. Other grasses which are eaten in the early rains but become too rank in the middle of the rains to appeal to the cattle are *dik* (*Sorghum dimidiatum stapf*), *dinding* (*Ischaemum brachyatherum Fenzl*), both grasses of the open plains, *yiu* (*Rottboellia exaltate L.f.*), which is found mainly away from streams and grows best on sandy ridges, and when full-grown is covered with spines on account of which it is also called *lep yang*, 'cow's tongue;' and *yuol* (*Pennitetum ramosum Schweinf.*) a grass of the open plains which has spiky heads that when it is full grown, run into the eyes of the cattle and make them sore so that they have to be bathed.

Therefore at the height of the rains, especially in a flood year, grazing is often a serious problem and cattle have to rely largely on the short grasses of the village ridges. This is where Lou country has an advantage over the Eastern Jikany districts and why many villages in Western Nuerland are so well placed. Such grasses are *jual jok* 'dog's tail' (*Setaria pallide-fusca Stapf and Hubbard*), and *bogh* (*Eriochloa nubica Hack. and Stapf.*), neither of which cattle relish, though *bogh* is eaten avidly by goats and sheep. Another ridge grass is *muŏth* (*Cynodon Dactylon Pero.*). These grasses are supplemented by grasses of the open plains that grow at the foot of the ridges, particularly *dut cieng nath*, and have been beaten down by rain. In those parts of Nuerland which are not favoured by wide ridges the cattle may starve in a year of very high flood.

Early in the season of *jiom*, the windy season that succeeds the rains and is the first part of the dry season, the grasses dry up and seed. It is not a good time for the cattle since the tall grasses impede their movement, no longer provide succulent pasturage, and may

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shelter beasts of prey. Nuer hasten to burn them as soon as they are dry enough, usually in the latter part of November and in the early part of December. If they are fired too early they are only half burnt and though new shoots spring up the old charred stems remain standing.

Some grasses which cattle eat in the wet season fail to come up after firing till the following rains. Such are *wal* (or *dut*) *lony*, 'lion's grass' which grows in the open plains; an excellent grazing grass called *gogh* (*Brachiaria obtusiflora Stapf*). also of the open plains and favouring shallow depressions; *töl muoth*, also of the open plains and good pasture in the rainy season.

Other grasses send up tender young shoots a few days after they are burnt. Probably this is due to their long roots which tap water held up in the clay beds and it may be partly due also to their clump formation which protects the core of the plants from the flames. If it were not for the fact that some grasses send up new shoots after firing it would be difficult for the cattle to survive. It would, I think, be impossible for them to survive inland in a dry year. Some of the main grasses which come up again, though they do not grow till the next rains, are *twät* (*sporobolus pyramidalis Beauv.*), a grass found mainly near sandy ridges and not greatly favoured by the cattle; *ghol* (*Setaria sp.*) which also the cattle do not much care for; *riëth* (*Setaria Lynesii Stapf and Hubbard*) a grass found mainly along shallow depressions; and *gau*. But the two grasses mainly to be depended on, and both much eaten by cattle, are *dut cieng nath* and a very tall grass, found near streams and pools, called *dut in lum* or *dut jaangni*. Some of the grasses which come up again grow near village sites and are therefore of little use because the cattle are in camps in the open plains, *e.g.*, *twät* and *ghöl*. It seems to depend to some extent on the amount of rainfall to what extent grasses send up shoots and in a very dry year grasses which would in a wet year send up shoots may not do so.

After the grasses have been burnt the cattle have a good time as they can wander as they please, being no longer impeded by surface

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water or rank vegetation, and as they can graze on the tender shoots. But when the dry season advances pasture becomes scarcer but cattle can graze again over the shoots. Eventually, however, they have to fall back on marsh grasses, especially in a dry year when such grasses of the plains as *dut cieng nath* may fail (it is said *ce tör* or *ce juac tör*). Nuer then make for rivers, swamps, lagoons, and deep marshy depressions where they can always find enough vegetation to keep the cattle alive. The chief marsh grasses are *poon* (*Onyza Barthi A. cheval*), *giëk*, *buogh*, and *kuth yang*. Nuer say that no grasses give more milk than these if the cows can obtain them in abundance.

Cattle also eat a number of plants and these are a useful addition to their diet. A good number of such plants, however, grow in cultivations and are therefore not accessible to the cattle, but some spring up in old garden sites and in the neighbourhood of habitations. Nevertheless cattle are grass grazers and it is mainly sheep and goats which graze on plants, and they eat also the leaves of young trees. Goats will eat almost anything but sheep are daintier feeders and will not touch some of the bitter plants and shrubs that goats devour. The plants eaten by sheep or goats, or by both, generally grow in old cultivations or on old homestead and camp sites. Some of those recorded are *Cak*, ' milk,' so-called because it oozes out a thick white juice when cut, *tiltil* (*Boerhaaira repens L.*) another plant called *tiltil* (*Indigofera Sp.*), *Wangrial* (*Justicia matammensis* (*Schwenf*) *oliv.*), *när yiauwa* (*Emilia sagittata DC*), *mut ngai*, ' spear of the francolin ' (*schleria foliosa A. Rich.*), *wöör* (*Portulaca Quadrifida L.*), *kutkakdeet* (*Glycine Borianii Bak*), *tac* (*Ipomoea reptans Poir*), *pac* (*Urochloa s:.*), *nyiök indit pin*, *tiecdong* (*cyperus rotundus L.*), *tiec*, *belagak gordet*, *kër jaakoah* (' crow's pumpkins '), *thil in cöt*, etc., etc.

XI.

Besides having to adapt themselves to conditions of water supply and vegetation Nuer have to adjust themselves to conditions of insect-life which is an ever-present obstacle to cattle husbandry in their country. The cattle get no rest from stinging flies and ticks from

6: Evans-Pritchard E-5 (1931, 1936)1938
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vary much from month to month for there are few seasonal changes at this time of the year. As the river falls it is possible to fish in lagoons and shallows and to bathe on its sandy bed. Then the lagoons dry up. When the river rises fish swim in the weeds and rushes and along some streams they are easily speared from the banks. The banks of the Sobat are too steep for this purpose. There are no longer shallows and bathing is a hasty dip for there is danger from crocodiles. The grazing grounds are changed from time to time as they become exhausted and as streams and lagoons dry up. At Yakwac there was succulent pasturage only where marsh plants still retained their moisture at the river end of lagoons. The people are still in camp when the first rains fall at the end of April or early in May and then there is everywhere an abundance of pasturage. The brown bush becomes green and the baked fissured earth a sodden mire. Dry lagoons become inland flowing streams. The scorching sun is clouded.

On the Sobat we guessed that the first rains had fallen inland by the migration of wild animals from its banks. Giraffe now left us for inland pastures where they would not have to face death every time they approached the river. Other animals likewise moved southwards, even the gazelle. On the northern bank, however, buffaloes still came to the river to drink and were attacked by hungry Nuer. Animals and men must obey the seasons and when there is no water except in inland lakes and lagoons, men, cattle, and wild beasts must drink at the same places. One can hear them at night cautiously coming to the pools to drink. When the rains come all leave for new pastures.

In May one knows that the move back to the wet season villages will shortly take place not only by cloudy skies and movements of game, but also by camp activities. The women are the first to leave camp and one meets them along paths, carrying their household goods in rectangular cane baskets. Youths leave camp early in the morning to cut stakes, generally of thornwood (*bwau*) and they spend a large part of the day shaping them into tethering pegs. They also twist new cord. The weather being cooler people do not feel so keenly the need to sleep towards noon. Everyone is becoming restless and

8:Howell E, G-5 (1942-1944)1954
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internal strife and political fission. (v) As the pressure from the north increased, a return to a semblance of cohesion was necessary and there emerged the great Nuer leaders or 'Prophets' who arose as symbols of tribal resistance to foreign aggression represented first in the Dervish forces who attempted to establish slaving centres in Nuerland and finally by the forces of the present Government. (vi) In the years which followed, administration was limited to an attempt to hold the Nuer from their attacks on the Dinka, to prevent fighting among themselves, and to the collection of taxes. Naturally enough the Nuer resented this, particularly the collection of tribute in cattle and the prevention of cattle raids, and despite the outstanding efforts of individual administrators such as Struvé, Stigand, and Jackson, the attempt to establish ordered administration was only partially successful. Resistance, raids on neighbouring tribes, and lack of internal security reached a climax in 1928. Captain Fergusson, then District Commissioner of Western Nuer, was assassinated; the Lou Nuer led by Gwek Ngundeng[1] had been showing open defiance for some time previously, and in that year too the Gaawar Nuer led by Dwal Diu[2] descended on the Dinka of Bor District and attacked the Government Post at Duk Faiwil. Reprisals followed and took the form of a series of strenuous military operations which were known as the 'Nuer Settlement'. Whatever the moral verdict, the Nuer learnt their lesson and came to heel. A period of pacification followed, and through the just and sympathetic methods of such men as Captain H. A. Romilly, Captain A. H. Alban, and Mr. H. G. Wedderburn-Maxwell, the feelings of fear and suspicion, which were natural enough in the circumstances, were quickly eradicated. It was these men who laid the foundations of the sound administrative system which was to follow. From an excessively arrogant, unco-operative and suspicious people, the Nuer rapidly became what they are now: still proud, still intensely democratic with a fine spirit of independence, but essentially friendly.

Topography and Ecology

Nuer country, set in the savannah and marshland of the Southern Sudan between latitudes 10° N. and 7° N. and with a seasonal rainfall between 800 and 1,000 mm.,[3] has its special topographical and climatic features which account for the present mode of life of the people. The total area of Nuerland in the Sudan is approximately

[1] See P. Coriat, 'Gwek the Witch-doctor and the Pyramid of Dengkur', *S.N.R.*, 1939.

[2] The son of Deng Likea, sometimes called the Prophet Diu, who rallied the Gaawar Nuer against the slavers at the end of the nineteenth century.

[3] Averages are: Malakal, 818 mm.; Fangak, 1136 mm.; Bentiu, 797 mm.; Ler, 902 mm.; Abwong, 744 mm.; Akobo, 925 mm.; Shambe, 819 mm. Fangak is exceptional, possibly owing to the heavy bush and Acacia forest in that region.

8:Howell E, G-5 (1942-1944)1954
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a greater or lesser extent isolated at certain times of the year. Such periodic isolation is one of the factors which tend to emphasize the distinction between social groups and strengthen the ties within them, for the people are compelled by territorial proximity to conform to an accepted pattern of behaviour. During the dry season, movements in the pasture areas are comparatively easy, but camps may be far apart and communications therefore tedious. The majority of people from a local community who occupy the same permanent settlement during the rains, tend to join together in the cattle-camps, and their relationship is therefore constant throughout the year. This is not, however, always the case, for people of different descent-groups, normally living together and assisting one another during the season of cultivation, may split up and join different cattle-camps during the summer. The way in which people join together and concentrate during the dry season is usually determined by kinship ties, or ties arising from common residence in the permanent settlements, though it need not be so. For example, the Lak Nuer are sometimes forced to move their cattle into Gaawar grazing areas because their own are insufficient to meet their needs in certain years. They do so by agreement with the Gaawar and graze their cattle there on sufferance. A closer analysis of the relations of Lak with Gaawar will usually show that some form of kinship relationship exists, or at least a relationship through intermarriage between the individual units concerned.

Climatic conditions adverse to the cultivation of millet coupled with widespread cattle disease (rinderpest, contagious bovine pleuropneumonia, trypanosomiasis, &c.) make life extremely precarious. Nuer like to claim that a mixed economy is forced upon them, and that they would scarcely bother to cultivate at all if their cattle were sufficient. This is, I think, largely an ideal. Cattle, though subject to disease, provide a measure of security in an environment where poor drainage and erratic rainfall distribution make crop-production a most risky enterprise and famine a common event. They might well cultivate more energetically if the processes of agriculture were not so laborious and their efforts so often of little avail.

Small quantities of maize are planted in the early rains and the crop matures, if they are lucky, about the end of July, providing temporary relief until the first crop of millet is available. This crop matures a few weeks later, while a second crop is harvested in November or December and sometimes as late as January. During this period the rains may be favourable to both crops and the Nuer are well supplied. In most years, however, one or the other crop fails and in the worst years the early crop is late in starting owing to lack of rain only to be ruined by torrential downpours when it is reaching maturity, while the second crop is often destroyed by floods. In such circumstances the Nuer are short of food, and two unsuccessful years mean

δ:Howell E, G-5 (1942-1944)1954
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241 famine. The distribution of rainfall is, however, not universally favour-
132 able or otherwise to all areas of Nuerland. Heavy rainfall in low-lying regions may prove fatal, while it is suitable for crops planted on better drained, sandier soil. Thus crops are not as a rule universally good or bad throughout Nuerland, nor within one tribal territory. Some families have good crops, others bad, and the position may be reversed in another year.

621 On a wider scale this leads to trading or a reaffirmation of more remote obligations of kinship; on a limited scale it leads to a re-emphasis of the ties of mutual assistance which are raised both by kinship and by association in a common territory. Economic considerations of this sort are important in the determination and maintenance of social groupings and in the maintenance of peaceful relations. This is a feature of Nuer society which has been at least partially modified by modern administrative methods since grain is often imported and sold in years of shortage.

The other principal factor making for social integration is the need for common defence against opposing groups or, in a much wider sense, defence against foreign aggression. It is obviously another factor which is most readily affected by modern influences and the introduction of an ordered administration. The need for mutual defence is lessened, and doubtless the feeling of opposition to an alien government is less intense now that the Nuer are used to it.

Whatever the factors making for social integration or the reverse, the pattern which extends within and across social groupings is the kinship system, both as a fact and as an ideal. The smaller the social unit the more important these factors are and the greater the need for mutual assistance and co-operation. Later we shall come to examine in greater detail how these factors have altered through normal contacts with other peoples and through the active policy of the Government, and in particular the resulting effect on legal concepts and procedures.

Social and Political Structure

114 Professor Evans-Pritchard has recorded a full analysis of the political and kinship systems of the Nuer. For the purpose of this work, which aims at the examination of legal processes and procedures in the present and to a lesser extent in the past, it is unnecessary to do more than summarize his observations and conclusions which, with the exception of minor local variations of no great importance in the general picture, are much the same as my own. Where I use examples, I often refer to the Zeraf Valley tribes, Gaawar, Thiang, and Lak, which Professor Evans-Pritchard has not studied. There is therefore some object in this summary, apart from its necessity as an introduction to the subject of law, since it provides further evidence from other parts

14: Huffman M-5 (no date) 1931
FJ22 Nuer FJ22

The year is divided into months according to the moon. 805

There are four seasons. The fishing season usually starts in the latter part of December or the first of January. It lasts probably three months, then when the rainy season starts and the river rises, the spring season begins. The spring season is called 'rwil' while the fishing season is called 'mei', or as we would pronounce it 'mae'. The season in which the dura is growing is called 'tot' (pronounced 'tawt') and corresponds to our summer season. The autumn season is called the season of winds or 'jom'.

There is no Government thermometer at Nasser, and I 132 ● can give no definite scale of temperature. I have had a thermometer in my sitting-room for several years—(a room with brick walls and grass roof, two large windows and two doors). The minimum temperature which I have happened to note was 56 degrees F. The maximum in this room was 105 degrees F. As a rule the temperature ranged from 84–100 degrees F. Of course different temperatures may be registered when the thermometer is placed elsewhere. I just give the temperature of the room where I was working during the hottest part of the day. Others have found their thermometers to register 110 degrees.

However the sun does a thorough job in heating the bath water. The pipes are on the surface of the ground and the water is often far too hot to use until after it has stood for a while, as there is no cold water to cool it with.

The day is also divided, so while the Nuer cannot tell 805 what time it is by giving the hour, they can give a very definite idea of what they mean.

au e durdur	not yet daybreak.
ci au bak	daybreak.
ci cag kany	sunrise.
thal cag	about ten o'clock.

features characteristic of the areas occupied by the majority of the Nilotes - flatness, heavy clay soil, thick, tall grasses, swamp in the wet season and parched, brown stubble in the dry season. It is an area of true savannah. 133

The influence of environment on Nuer economy is profound. Although cattle form the great interest of the Nuer people, and are important socially as well as economically, horticulture is a necessary part of their economy owing to the prevalence of cattle diseases and the difficulties of obtaining adequate pastures in the dry season. Horticulture and cattle herding are, therefore, the two main economic activities, and together they determine the ecological cycle, as well as the distribution of population, village sites, and also the relationships between the various segments into which the Nuer are divided. 233 241

Nuer villages are situated on elevated ground out of reach of the wet season floods. In the early rains the cattle feed on young shoots near the village but, as the vegetation becomes too rank and the waters rise, the herds have to graze off the short grasses of the village ridges. During the wet season millet and other grains, vegetables and tobacco are grown in the gardens situated behind the homesteads. At the end of the rains, in November, the floods begin to recede. When the tall, tough grasses, which are unsuitable for the cattle to eat, are sufficiently dry they are burned. Since some varieties send up shoots a few days later, the cattle have fresh pasture until the height of the dry season when the water supplies fail in many regions. The Nuer then seek the permanent water-courses and dry-season pastures. When the harvests are finished they move from the villages to the dry-season camps; a period of wandering divides the two periods of stable residence. The dry-season camps are situated on the banks of rivers which do not completely dry up or on the edge of permanent swamps. 233 241 361 132

When the rains begin again in April and May, water and pasture become plentiful and a move is made back to the villages above flood level, in order to prepare the ground for cultivation.

The annual cycle is approximately set out below. It has considerable repercussions on social life and, although local conditions may cause some variation, the principles underlying the annual cycle are the same everywhere in Nuerland. 221

November - December. Youths and girls take cattle to camps while the old people remain in the village to harvest the second millet crop. Fishing camps may be formed on the banks of rivers. When the second harvest is finished the cattle are brought back to eat the millet stalks but as the pasturage becomes exhausted all eventually go to occupy new cattle camps. A period of wandering precedes the final settlement in the camp. 221 361 233 241

January - February. The married people join the youths when they settle in the final camping grounds. Camps get larger and larger as pastures become scarcer and more people join existing camps. Different villages and tribal sections tend to move at about the same time and to visit the same pools so that the sites of the main dry-season camps do not change from year to year. 221 361